

ADDITIONAL NOTES ON THE GENUS AEGIPHILA. XXI

Harold N. Moldenke

AEGIPHILA Jacq.

Additional bibliography: C. Darwin, *Diff. Forms Fls.*, ed. 1, 123--124, 286--287, & 346 (1877) and ed. 2, 123--124, 286--287, & 346. 1886; H. Müll. [transl. D'A. Thompson], *Fertiliz. Fls.* 469. 1883; Hubert, *Trav. Lab. Nat. Méd. Fac. Pharm. Paris* 13 (4): 1--128. 1921; Lasser, *Act. Ci. Venez.* 2: 233--235. 1951; Blohm, *Poison.Pl. Venez.* 90. 1962; Moldenke, *Phytologia* 27: 73--88. 1973.

Lasser collected a species of Aegiphila in the vicinity of Caicara, Venezuela, where it is known as "borracho". The natives claim that pigs there dig for the roots for food, but that when donkeys or horses eat it they are subject to an intoxication known locally as "borrachera". This differs from the condition known by that name in cattle.

Charles Darwin (1877) makes the following interesting observation: "Most of the species of the South American genus Aegiphila, a member of the Verbenaceae, apparently are heterostyled; and both Fritz Müller and myself thought that this was the case with AE. obdurata [A. obducta Vell.], so closely did its flowers resemble those of the heterostyled species. But on examining the flowers, the anthers of the long-styled form were found to be entirely destitute of pollen and less than half the size of those in the other form, the pistil being perfectly developed. On the other hand, in the short-styled form the stigmas are reduced to half their proper length, having also an abnormal appearance; whilst the stamens are perfect. This plant therefore is dioecious; and we may, I think, conclude that a short-styled progenitor, bearing long stamens exerted beyond the corolla, has been converted into the male; and a long-styled progenitor with fully developed stigmas into the female." This is an extremely thought-provoking theory on a possible evolutionary origin of dioecism.

AEGIPHILA CAUCENSIS Moldenke

Additional bibliography: Moldenke, *Phytologia* 25: 295. 1973.

Espinal describes this plant as a shrub with yellow fruit and found it growing at 1300 meters altitude, fruiting in November.

Additional citations: COLOMBIA: Valle del Cauca: Espinal T. 2178 (Oa).

AEGIPHILA ELATA Sw.

Additional bibliography: C. Darwin, *Diff. Forms Fls.*, ed. 1, 123--124 & 346 (1877) and ed. 2, 123--124 & 346. 1886; H. Müll. [transl. D'A. Thompson], *Fertiliz. Fls.* 469. 1883; Moldenke, *Phytologia* 27: 76--79, 82, 85, & 86. 1973.

Charles Darwin (1877) made some extremely interesting observations about this plant: "Mr. Benthams was so kind as to send me

dried flowers of this species [Aegiphila elata] and of AE. mollis, both inhabitants of South America. The two forms [of each species] differ conspicuously, as the deeply bifid stigma of the one, and the anthers of the other project far above the mouth of the corolla. In the long-styled form of the present species, the style is twice and a half as long as that of the short-styled. The divergent stigmas of the two forms do not differ much in length, nor as far as I could perceive in their papillae. In the long-styled flowers the filaments adhere to the corolla close up to the anthers, which are enclosed some way down within the tube. In the short-styled flowers the filaments are free above the point where the anthers are seated in the other form, and they project from the corolla to an equal height with that of the stigmas in the long-styled flowers. It is often difficult to measure with accuracy pollen-grains, which have long been dried and then soaked in water; but they here manifestly differed greatly in size. Those from the short-styled flowers were to those from the long-styled in diameter in about the ratio of 100 to 62. The two forms of AE. mollis present a like difference in the length of their pistils and stamens."

AEGIPHILA MEDITERRANEA Vell.

Additional synonymy: Aegiphyla mediterranea Arrab. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Aegiphila mediterranea Arrab. apud Walp., Repert. Bot. Syst. 4: 124. 1845.

Additional & emended bibliography: Schau. in Mart., Fl. Bras. 9: 285 & [309—310]. 1851; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 46. 1893; Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1167 & 1168. 1904; Briq. in Chod. & Hassler, Plant. Hassler. 2: 503 & 504. 1904; Glaz., Bull. Soc. Bot. France 58 [ser. 4, 11], Mém. 3: 546. 1911; Moldenke, Brittonia 1: 252, 266, 267, 307, 309, 331—332, & 472—477. 1934; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 46 (1946) and pr. 3, 1: 46. 1960; Moldenke, Phytologia 13: 332—333. 1966; Moldenke, Résumé Suppl. 16: 14. 1968; Moldenke, Biol. Abstr. 50: 7999. 1969; Moldenke, Phytologia 18: 209. 1969; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo, ed. 1, 1: xxxvi (1969) and ed. 1, 4: i & 827. 1971; Hocking, Excerpt. Bot. A. 18: 444. 1971; Moldenke, Fifth Summ. 1: 145, 194, 354, 378, 379, 381, & 384 (1971) and 2: 847. 1971; Moldenke, Phytologia 25: 228 & 294. 1973.

The São Paulo record cited by me in my 1934 work proves on re-examination to represent var. brevilobata Moldenke rather than the typical form of the species.

Additional & emended citations: BRAZIL: Rio de Janeiro: G. Gardner 100 (F—686422, W—1066266); Saldanha & Glaziou 29 [Glaziou 11337] (P).

AEGIPHILA MEDITERRANEA var. BREVILOBATA Moldenke

Bibliography: Moldenke, Phytologia 18: 209. 1969; Moldenke, Biol. Abstr. 50: 7999. 1969; Hocking, Excerpt. Bot. A. 18: 444.

1971; Moldenke, Fifth Summ. 1: 145 & 194 (1971) and 2: 847. 1971; Moldenke, Phytologia 25: 294. 1973.

Collectors describe this plant as a shrub, 2-3 m. tall, or a treelet, 5 m. tall. Hatschbach says of the flowers "flor esverdeada, dos pastos" or "flor creme-esverdeada". It has been collected in anthesis in May and September, and material has been misidentified and distributed in some herbaria as A. mediterranea Vell. and Cordia sellowiana Cham. Miss Troncoso identified it as A. brasiliensis Moldenke.

Citations: BRAZIL: Paraná: Hatschbach 22189 (M1); Hatschbach & Guimarães 19837 (N), 22189 (N); Krapovickas 13364 (Z-type). São Paulo: Campos Novaes s.n. [Herb. Inst. Bot. S. Paulo 2127] (N). ARGENTINA: Misiones: Rodríguez 457 (N).

AEGIPHILA MEDULLOSA Moldenke

Synonymy: Aegiphila medulosa Moldenke, Résumé Suppl. 2: 8, in syn. 1960.

Additional & emended bibliography: Moldenke in Fedde, Repert. Spec. Nov. 33: 132-133. 1933; A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 568. 1941; Moldenke, Résumé Suppl. 2: 8. 1960; Moldenke, Phytologia 7: 488. 1961; Moldenke, Fifth Summ. 1: 145 & 381 (1971) and 2: 847. 1971.

AEGIPHILA MEMBRANACEA Turcz.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 46 (1893) and pr. 2, 1: 46. 1946; Moldenke, Mutisia 6: 3-4. 1952; Moldenke, Phytologia 5: 95. 1954; Moldenke, Inform. Mold. Set 51 Spec. [1]. 1956; Uribe, Mutisia 25: 23. 1956; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 46. 1960; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 704 & 712-713. 1960; Moldenke, Phytologia 13: 333 & 337. 1966; Moldenke, Fifth Summ. 1: 114, 121, 131, 133, 139, 145, & 384 (1971) and 2: 847. 1971; Moldenke, Act. Bot. Venez. 6: 94. 1972; Moldenke, Phytologia 25: 228. 1973.

Recent collectors describe this plant as a small shrub with overhanging branches or semi-climbing, 1.5 m. tall, the fruit orange, and have found it growing at 1000 meters altitude, flowering in April and October, and fruiting in October. The corollas are described as "greenish-yellow" on Lindeman 6131. López-Palacios describes the plant as an "Árbustico ca. 1.50 m. Glándulas en el envés de las hojas. Frutos amarillos que pasan a anaranjados. Muy similar en su hábito a 2968 (Ae. mollis), pero de pubescencia menos densa." The López-Palacios 3144, distributed as A. membranacea, matches well many other collections so identified by myself in the past, but I am now in doubt as to whether these specimens with the lower leaf-surface decidedly puberulent-pubescent actually should be placed here. Turczaninow's original (1863) description of the species calls for "laminis.... utrinque praeter costam glabris". It is more probable that these pubescent-leaved specimens may actually represent A. mollis var.

intermedia Moldenke.

Macbride (1960) cites only Tessmann 4666 from Loreto, Peru, but gives the overall distribution of the species as "To Colombia, Venezuela, Surinam".

Additional & emended citations: VENEZUELA: Apure: López-Palacios 2988 (Ld). Bolívar: Bernardi 6815 (N); Steyermark & Nilsson 193 (W--2486291). Falcón: Jahn 384 (W--603045). Mérida: Bernardi 2055 (S). FRENCH GUIANA: Mélinon 433 (F--540011, W--1123377), s.n. [in 1864] (W--1112793), s.n. [in 1877] (F--640074, W--1123380); Wachenheim 100 (F--540858, F--640047, W--1123261), s.n. [Environs of Godebert] (W--1123947).

AEGIPHILA MERIDENSIS López-Palacios, Pittieria 5: [34]--[37], fig. 8. 1973.

Bibliography: López-Palacios, Pittieria 5: [8], 9, & [34]--[37], fig. 8. 1973.

Illustrations: López-Palacios, Pittieria 5: [37], fig. 8. 1973.

This species is based on López-Palacios 3013 from El Valle, near Mérida, Mérida, Venezuela, collected on January 1, 1973, and deposited in the herbarium of the Universidad de los Andes in Mérida. López-Palacios (1973) says of the species: "Muy afín a la Aegiphila bogotensis var. aequinoctialis Moldenke de la cual difiere en el cáliz trunco y no bilabiado en la corola 4-mera no 5-mera; en las hojas elípticas, en el fruto esférico no obovado y en la ausencia de acúleos."

Citations: VENEZUELA: Mérida: López-Palacios 3013 (Z--isotype).

AEGIPHILA MICROCALYCINA Moldenke, Phytologia 23: 314--315. 1972.

Bibliography: Moldenke, Phytologia 23: 314--315 & 418. 1972; Anon., Biol. Abstr. 54 (7): B.A.S.I.C. S.8 & S.280. 1972.

Prance and his associates describe this species as a vine or liana and found it growing on sandy soil in forests on terra firma as well as at the edge of an airfield, at 800 meters altitude, flowering in February and March. Material has been misidentified and distributed in some herbaria as A. vitelliniflora Klotzsch.

The corollas are said to have been "cream, filaments white" on Prance, Steward, Harter, Pinheiro, & Monteiro 10907 and "white" on Prance, Steward, Ramos, & Farias 9838, while Prance, Steward, Ramos, & Monteiro 11233 had the "petals and stamens white".

A vernacular name recorded for this plant is "laitetotorimo". Material has been misidentified in some herbaria as Malpighiaceae.

Citations: BRAZIL: Roraima: Prance, Steward, Harter, Ramos, Pinheiro, & Monteiro 10907 (N--isotype, Z--type); Prance, Steward, Ramos, & Farias 9838 (N); Prance, Steward, Ramos, & Monteiro 11233 (Ld).

AEGIPHILA MINASSENSIS Moldenke

Additional bibliography: Moldenke, Known Geogr. Distrib. Verben-

ac., [ed. 2], 74 & 175. 1949; Moldenke, Bol. Mus. Nac. Rio Jan., new ser., Bot. 12: 1-2 & [5]. 1950; Moldenke, Phytologia 4: 402. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 5. 1953; Angely, Ind. Ang. 10. 1959; Moldenke, Résumé 86 & 441. 1959; Moldenke, Fifth Summ. 1: 145 (1971) and 2: 847. 1971.

Illustrations: Moldenke, Bol. Mus. Nac. Rio Jan., new ser., Bot. 12: [5]. 1950.

AEGIPHILA MOLDENKEANA López-Palacios, Pittieria 5: [26]—[33], fig. 5-7. 1973.

Bibliography: López-Palacios, Pittieria 5: [8], 9, 23, 24, & [26]—[33], fig. 5-7. 1973; Moldenke, Phytologia 27: 79-81. 1973.

Illustrations: López-Palacios, Pittieria 5: [31]—[33], fig. 5-7. 1973.

The type of this species was collected by Luis E. Ruíz-Terán and Santiago López-Palacios (no. 1983) at Paramoide de San Francisco o de Guaraque, between the towns of Guaraque and Tovar, in the Cordillera de los Andes, district Tovar, Mérida, Venezuela, at an altitude of 2320 meters, and is deposited in the herbarium of the Universidad de los Andes in Mérida, Venezuela. López-Palacios (1973) says of it "Muy afín a la *Ae. novogranatensis* Moldenke y a la *Ae. odontophylla* Donn. Sm.; de la primera difiere en las inflorescencias axilares, en las cimas verruculosas lenticiladas y en el cáliz trunco, de la segundo en el indumento completamente diferente y en la ausencia de pequeños agujones." He cites also Ruíz-Terán & López-Figueiras 581 and López-Palacios S.1538 from Mérida. He adds that "Creo que mucho material colombiano, colectado en fruto, y colocado bajo el rubro de *Ae. grandis* debe ser reinterpretado y colocado aquí, pero este trabajo incumbe a quien llegue a enfrentarse con la revisión de las Verbenáceas de Colombia, lo que no veo hacedero en un futuro cercano."

Recent collectors describe this plant as an unarmed shrub or tree, 3-10 m. tall, with evergreen firmly "membranous" [chartaceous] to subcoriaceous leaves, deep-green and shiny above with a yellowish midrib, paler dull-green beneath with a dull-lavender midrib and lateral raised veins, the branches of the inflorescence patent-spreading, globose dull-green [immature] fruit, and red-purple flowers [Ruíz-Terán & López-Figueiras 581 — perhaps an error for "fruit" rather than "flowers" because the collection seems to be only in fruit]. It has been encountered growing at altitudes of 1800 to 2850 meters, flowering in May, and fruiting in February, May, and August.

López-Figueiras & Rodríguez describe the plant as an "Árbol 8-12 m de alto, 15 cm de diámetro DAP; ramificación en el 1/3 superior. Ramas jóvenes subtetrágonas, pubescentes. Hojas simples, opuestas, su coriáceas, verde claro por la haz, más pálidas por el envés, pecioladas, pubescentes. Inflorescencias axilares solitarias; cáliz hipocrateriforme, bilabiado; flores cremosas;

fruto drupáceo, negro intenso" and collected it at 2500 meters altitude. López-Palacios describes the leaves as membranous, "algo violáceas", the calyx truncate, the flowers tetramerous, and the corollas white.

Material has been misidentified previously and distributed in some herbaria as A. grandis Moldenke, which it closely resembles superficially. On the other hand, the López-Palacios & Rodríguez 8894, distributed in some herbaria as A. moldenkeana, is actually A. bogotensis var. aequinotialis Moldenke, while Bernardi 6157 is A. odontophylla Donn. Sm.

Citations: VENEZUELA: Mérida: López-Palacios 1538 (Ft, Z); Ruíz-Terán & López-Figueiras 581 (N), 1983 (N—isotype); J. A. Steyermark 56458 (F—1221913, N).

AEGIPHILA MOLLIS H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 203, pl. 130. 1817.

Additional & emended synonymy: Aegiphila mutisii H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 203, pl. 131. 1817. Aegiphila salutaris H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 202. 1817. Aegiphyla mollis Humb. & Bonpl. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Aegiphyla mutisii Humb. & Bonpl. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Aegiphyla salutaris Humb. & Bonpl. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Aegiphyla pubescens Willd. apud Steud., Nom. Bot., ed. 2, 1: 29, in syn. 1840. Cornutia velutina Hayek in Engl., Bot. Jahrb. 42: 172. 1908. Aegiphila salutaris var. lutea Moritz ex Moldenke, Phytologia 1: 239, in syn. 1937. Aegiphila pubescens (H.B.K.) Willd. ex Moldenke, Suppl. List Invalid Names [1], in syn. 1941.

Additional & emended bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 202—203, pl. 130 & 131 (1817), ed. quarto, 2: pl. 130 & 131 (1817), and ed. quarto, 2: 249—250. 1818; D. Dietr., Syn. Pl. 1: 430. 1839; Schau., Linnaea 20: 483. 1847; Schau. in Mart., Fl. Bras. 9: 288—289 & [309—310]. 1851; Bocq., Rév. Verbenac. 190. 1863; C. Darwin, Diff. Forms Fls., ed. 1, pr. 1 [London] 123—124 & 346 (1877) and ed. 1, pr. 2 [New York], 123—124 & 346. 1877; H. Müll. [transl. D'A. Thompson], Fertiliz. Fls. 1883; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 46. 1893; T. Peckolt, Bericht. Deutsch. Pharm. Gesel. 14: 478. 1904; Hayek in Engl., Bot. Jahrb. 42: 172. 1908; Hubert, Trav. Lab. Méd. Fac. Pharm. Paris 13 (4): 1—128. 1921; Moldenke, Brittonia 1: 247, 254, 259, 271, 403—406, 408, 411—413, 446, 461, & 472—477. 1934; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 568. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 46. 1946; LeCointe, Amaz. Bras. III Arv. & Plant. Uteis, ed. 2, 154. 1947; Moldenke, Mutisia 6: 4. 1952; Uribe, Mutisia 25: 23. 1956; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 46. 1960; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 701—703, 713, & 715. 1960; Blohm, Poison. Pl. Venez. 90. 1962; Moldenke, Phytologia 13: 333—334. 1966; Aris-

teguieta, Act. Bot. Venez. 3: 34. 1968; Moldenke, Résumé Suppl. 16: 3, 14, & 15. 1968; Lasser, Act. Bot. Venez. 4: 48. 1969; Dwyer, Raymondiana 4: 70. 1971; Moldenke, Fifth Summ. 1: 87, 89, 114, 121, 381, 382, & 471 (1971) and 2: 847. 1971; Moldenke, Phytologia 25: 228 (1973) and 27: 87. 1973.

Illustrations: H.B.K., Nov. Gen. & Sp. Pl., ed. quarto, 2: pl. 130 & 131 (1817) and ed. folio, 2: pl. 130 [in color] & 131 [in color]. 1817.

Recent collectors describe this plant as an "herb" or shrub, 1-2 m. tall, often arching, or a small tree, to 4 m. tall, with yellow [immature?] fruit, and have found it growing in thickets, open forests, on dissected plateaus, and in roadside savannas, at altitudes of 1100 to 1750 meters, flowering (in addition to months previously reported by me) in May and fruiting in September. The corollas are described as having been "orange" on Tyson & Blum 2552, "yellow" on Duke 12363, Dwyer 1301, and Woodson, Allen, & Seibert 1174, "pale-yellow" on Davidson 638, "almost yellow" on Duke 13706a, "pale-cream" on Raven 21894, and "greenish-cream" on Woodson & Schery 758.

López-Palacios describes this plant as an (2968) "arbustico ca. de 1-2 m. Hojas opuestas y 3-verticiladas, pubescentes por la haz, lanoso-velutinosas por el envés; flores de cáliz verdozo; corola blanquecina. Frutos amarillos"; (3089) "arbusto ca. de 1 m.; flores verde cremosas"; (3111) "frútice ca. de 1-1.5 m.; hojas opuestas de base aguda y ápice acuminado de aroma característico; flores de color crema; en el sotobosque"; (3127) "arbusto de unos 1.5 m.; hojas firmemente membranáceas, las jóvenes especialmente dentadas, con glándulas a los lados del nervio medio; inflorescencias aún sin abrir"; and (3148) "arbolito de 3-4 m., poco ramificado; en potreros, en campo abierto; flores de color amarillo crema". He encountered it growing at 190-200 meters altitude, flowering in June.

The Mutis 423 [305] collection, cited below, is said to be the type collection of A. mutisii H.B.K. as represented in the Madrid herbarium. It should be noted here that the revised dates for the H.B.K. references given above have been authenticated by the late Dr. John Hendley Barnhart, noted botanical bibliographer (1902).

LeCointe (1947) records the vernacular name "contra-cobra" for this plant and notes that "Toda a planta é fedorenta" and that it is employed in native popular medicine "Passa por antidoto do veneno das cobras". Blohm (1962) also avers that [in the salutaris form] it is used in Venezuela as an antidote against snake bites; also that the flowers are used in the treatment of epilepsy and the bark as a purgative. Peckolt (1904) discusses the species under the names A. mutisii H.B.K. and A. salutaris H.B.K. Of the former he says "In den Nordstaaten [of Brazil] vorkommend mit den Benennungen Mofunbó da capoeira und Cipó amarra giqui — Fischreisliane. Dieser Schlingstrauch wird nicht arzneilich benutzt, nur zur Flechtarbeiten und zum Binden." Concerning the

latter he says "Im Staate Amazonas von den Kautschuksammlern Contra cobra -- Schlangenantidot benannt, zu welchem Zwecke die frischen Blüten mit Zuckerbranntwein mazeriert und die Tinktur genommen wird; die gestossenen Blüten als Umschlag auf die Bisswunde. Die unangenehm riechenden Blätter benutzt man als Tee bei Epilepsie, morgens und abends genossen; die Wurzelrinde als Abführmittel." Dwyer (1971) cites Woytkowski 5807 from Junín, Peru, as A. mutisii.

Charles Darwin (1877) gives a most interesting description of the conspicuous heterostyly seen in the flowers of A. mollis, for which see under A. elata on pp. 148--149 of the present installment of these notes.

Material of A. mollis has been misidentified and distributed in some herbaria as A. panamensis Moldenke and as A. paniculata Moldenke.

Additional & emended citations: COSTA RICA: Puntarenas: Raven 21894 (N). PANAMA: Canal Zone: H. Pittier 2950 (W--677336). Chiriquí: M. E. Davidson 638 (E--1172335, F--933709); J. A. Duke 13706a (N); Woodson, Allen, & Seibert 1174 (E--1171725); Woodson & Schery 758 (E--1204857, N). Coclé: Tyson & Blum 2552 (E--1817311). Veraguas: J. A. Duke 12363 (Oh); J. D. Dwyer 1301 (E--1799965). COLOMBIA: Arauca: López-Palacios 2968 (Ac, Ld). Atlántico: Dugand 101 (F--660958), 469 (F--685264); Elias 1102 (W--1484862). Bolívar: Elias 581 (W--1422097). Cauca: Espinal T. & Ramos 2729 (Ft); F. C. Lehmann 6692 (F--663047--photo, F--689795, W--1323346). Cundinamarca: H. L. Mason 13878 (Ac); Mutis 423 [305] (W, W--1561208), 3660 (W--1561453); F. W. Pennell 2767 (W--1042453). Magdalena: H. H. Smith 868 (D--509228, E--117692, F--137858, W--533240, Ws), 870 (D--528135, E--117689, F--137859, W--533241), 1860 (D--528136, E--117688, F--138702, W--533760). Tolima: Ariste-Joseph A. 313 (W--1068097). Valle del Cauca: García y Barriga 6449a (W--1744955); F. C. Lehmann 5089 (F--578225). VENEZUELA: Barinas: López-Palacios 3089 (Ld), 3111 (Ld), 3127 (Ld), 3148 (Ac). Carabobo: H. Pittier 7910 (W--988006). Federal District: Funck 179 (P). Lara: Saer 723 (F--636097). Mérida: Ruiz-Terán & López-Figueiras 673 (N). Miranda: H. Pittier 7855 (W--987953). State undetermined: Eggers 13464 (W--1234682). LOCALITY OF COLLECTION UNDETERMINED: F. C. Lehmann B.T.705 (F--559957).

AEGIPHILA MOLLIS var. INTERMEDIA Moldenke

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 568. 1941; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 702 & 713. 1960; Moldenke, Phytologia 13: 334. 1966; Moldenke, Fifth Summ. 1: 114 & 384 (1971) and 2: 847. 1971.

Macbride (1960) says that "The var. intermedia Mold. described from Colombia is only tomentulose-puberulent and seems to be A. peruviana.... Since compiling this account Julian Steyermark has kindly

sent me a series of A. mollis HBK. including the type photograph and cotype of var. intermedia Mold. which has made me more skeptical of the value of A. peruviana Turcz. and thereby of other specific judgments."

The López-Palacios 3114, cited below, is regarded by the collector as representing A. membranacea Turcz., but Turczaninow (1863) describes his species as having the leaves (except for the midrib) glabrous on both surfaces. It seems very probable to me that the pubescent-leaved collections hitherto regarded as A. membranacea are more likely to actually represent A. mollis var. intermedia. López-Palacios describes his plant as an "arbolito ca. de 3 m. en el sotobosque de las 'matas' llaneras; hojas cartáceas, elípticas, de base y ápice agudos, ligeramente glandulosas por el envés; corolas amarillo cremosas" and found it growing at 190 m. altitude, flowering in June.

Additional citations: VENEZUELA: Barinas: López-Palacios 3114 (Z).

AEGIPHILA MOLLIS var. SURFACEANA (Moldenke) Moldenke, *Phytologia* 25: 430. 1973.

Synonymy: Aegiphila surfaceana Moldenke, *Bull. Torrey Bot. Club* 58: 462--463. 1931. Aegiphila velutina Huber ex Moldenke, *Brittonia* 1: 406, in syn. 1934. Aegiphila surfacei Moldenke, *Alph. List Invalid Names Suppl.* 1: [1], in syn. 1947.

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 9: 6. 1938; Fedde & Schust. in *Just, Bot. Jahresber.* 59 (2): 416. 1939; Moldenke, *Phytologia* 7: 505. 1961; Moldenke, *Fifth Summ.* 1: 146, 382, & 383 (1971) and 2: 848. 1971; Moldenke, *Phytologia* 25: 430. 1973.

All of the notes given by me in previous installments in this series under A. surfaceana should be transferred here. It does not appear to me now that the taxon differs from A. mollis H.B.K. sufficiently to warrant specific recognition, but certainly enough to warrant varietal rank. It is also possible that one of the H.B.K. synonyms now included under A. mollis may belong here instead. Careful examination of the H.B.K. types is essential to decide this.

Recent collectors describe this plant as a shrub or small tree, with grayish-green leaves and brown fruit and have found it flowering and fruiting in June. The corollas on Maas & Maas 331 are described as having been "green".

Additional & emended citations: BRAZIL: Amazonas: Maas & Maas 331 (N); R. Schomburgk 981 (F--686525, W--703008). Pará: Dahlgren & Sella 173 (F--602605); Huber 2022 (F--602765), 3296 (F--602777).

AEGIPHILA MONSTROSA Moldenke

Additional & emended bibliography: Moldenke, *Brittonia* 1: 247, 251, 252, 254, 265, 293--299, 301, 472, & 474--477. 1934; A. W. Hill, *Ind. Kew. Suppl.* 9: 6. 1938; Fedde & Schust. in *Just, Bot.*

Jahresber. 59 (2): 416. 1939; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14353. 1958; Moldenke, Phytologia 13: 334. 1966; Moldenke, Résumé Suppl. 16: 2 (1968) and 17: [1]. 1968; Gibson, Fieldiana Bot. 24 (9): 170 & 174--175. 1970; Moldenke, Fifth Summ. 1: 66, 78, 81, & 82 (1971) and 2: 847. 1971.

Recent collectors describe this plant as a weak or arborescent shrub or small tree, 2--8 m. tall, the trunk 8--15 cm. in diameter, the flowers scented, and the [immature] fruit green. They have found it growing in wet thickets, high or low forests, hilltop forests, achahual on hillslopes and creeksides, ramonal on hillsides or lakeshores, and ramonal covering old temple ruins, as well as on high and wild coffee ridges, at 100 meters altitude, fruiting from December to April. They report the common names "carreta", "hullub", and "ruksain". The corollas are described as having been "white" on Contreras 1656, Gentle 5078, 6900, & 7548, and Ortiz 450 & 1458. Chavales Pólito and his associates found it "in achahual viejo Selva med. Subperenn. de Manilkara xapotilla-Dendropanax-Lysiloma...in Suelo arcilloso. Roca caliza (sah-kab) a 45 cms."

The Játiva & Epling 354 & 543, distributed as A. monstrosa, are actually A. alba Moldenke.

Additional & emended citations: MEXICO: Campeche: Chavelas Pólito ES.798 (Mi); Chavelas Pólito & al. ES.1024 (Mi). Chiapas: F. Miranda 5104 (W--2508465), 7890 (W--2508391). GUATEMALA: Alta Verapaz: Cook & Griggs 521 (W--408225, W--1323292); H. V. Johnson 520 (W--1081412). El Petén: Contreras 1656 (Ld); C. L. Lundell 15443 (Ld, N), 15464 (Au--228032, Ld), 15831 (Au--228028, Ld); Ortiz 450 (N), 857 (N), 1458 (N). Izabal: P. C. Standley 23757 (W--1139432), 25114 (W--1150708). BRITISH HONDURAS: Gentle 404 (W--1587465), 948 (E--1067766), 5078 (Au--239636, Mi), 6900 (Au--224737), 7548 (Au--239641), 9042 (Ld, N); C. L. Lundell 146 (F--580839, W--1490192); Schipp 1083 (Ca--505749, E--1040488, F--668900); Winzerling 105 (F--573774, W--315503). HONDURAS: Atlántida: Molina R. & Molina 25630 (N); P. C. Standley 52717 (F--582333, W--1407284), 53176 (F--532231, W--1407568), 55268 (F--583997, W--1408744). Cortés: Carleton 422 (W--1169015--type); Record & Kuylen H.19 (W--1315373, Y--9965), H.19a (W--1315374). Yoro: P. C. Standley 53938 (F--583917, W--1408054).

AEGIPHILA MONTANA Moldenke

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 568. 1941; Moldenke, Phytologia 7: 490. 1961; Moldenke, Fifth Summ. 1: 114 (1971) and 2: 847. 1971.

AEGIPHILA MONTICOLA Moldenke

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Moldenke, Phytologia 7: 490. 1961; Acosta-Solis, Divis, Fi-

togeogr. Ecuad. [79]. 1968; Moldenke, Fifth Summ. 1: 134 (1971) and 2: 847. 1971.

Acosta-Solis (1968) records the vernacular name, "palo zapallo", for this species and cites Acosta-Solis 6695.

Emended citations: ECUADOR: Chimborazo: Rimbach 118 (F--666795--type). Pichincha: Schimpff 252 (E--1081413).

AEGIPHILA MORTONI Moldenke

Additional bibliography: Hill & Salisb., Ind. Kew. Suppl. 10: 5. 1947; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 704 & 713--714. 1960; Moldenke, Phytologia 7: 490--491. 1961; Moldenke, Fifth Summ. 1: 139 (1971) and 2: 847. 1971.

Macbride (1960) cites only Cook & Gilbert 1234 from Cuzco, Peru, the type collection.

Emended citations: PERU: Cuzco: Cook & Gilbert 1234 (W--604429--type).

AEGIPHILA MULTIFLORA Ruiz & Pav.

Synonymy: Aegiphyla multiflora Ruiz & Pav. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Clerodendron bolivianum Britton ex Rusby, Bull. Torrey Bot. Club 27: 82. 1900. Clerodendron bolivianum Rusby ex Moldenke, Prelim. Alph. List Invalid Names 18, in syn. 1940. Clerodendrum bolivianum Britton apud J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 714, in syn. 1960.

Additional & emended bibliography: Bosc, Nouv. Dict. Hist. Nat., ed. 1, 1: 114 (1803) and ed. 2, 1: 174. 1816; Roem. & Schult. in L., Syst. Veg., ed. 15 [Stuttg.], 3: 103 & [535]. 1818; Steud., Nom. Bot. Phan., ed. 1, 1: 16. 1821; Bocq., Rév. Verbenac. 190. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 46. 1893; Moldenke, Brittonia 1: 255, 259, 264, 295--297, 330, 444, & 474--477. 1934; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 46. 1946; Moldenke, Phytologia 5: 96. 1954; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 46. 1960; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 702 & 714. 1960; Moldenke, Phytologia 13: 335. 1966; Moldenke, Résumé Suppl. 16: 14 (1968) and 17: 12. 1968; Moldenke, Fifth Summ. 1: 139, 181, 384, & 440 (1971) and 2: 847. 1971.

Illustrations: Ruiz & Pav., Fl. Peruv. & Chil. 1: pl. 76. 1798.

Recent collectors have found this plant growing on open slopes, at altitudes of 2140--3300 meters, flowering in June. Macbride (1960) notes that "Ruiz and Pavon apparently combined their Pillao and Huassahuassi collections and noted it growing near water with aspect of Cornus". He cites Field Mus. neg. 17587 and Ruiz & Pavón s.n. [Pillao] and Asplund 13586 from Huánuco, Ruiz & Pavón s.n. [Huassahuassi] from Junín, and Metcalf 30550 and Vargas 1311, 6948, & 9644 from Puno, Peru. He designates the Ruiz & Pavón collection from Junín as the type of the species. Bosc (1803) calls the species "égiphyle multiflore".

Additional & emended citations: PERU: Cuzco: Vargas C. 15630

(W--2446618). BOLIVIA: Cochabamba: J. Steinbach 5809 (F--550552). El Beni: Euchtien 2992 (W--700579, W--1159348); Julio 454 (W--1282316); H. H. Rusby 2619 (W--1323362).

AEGIPHILA NERVOSA Urb.

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 5. 1933; Moldenke, Brittonia 1: 252, 253, 257, 275, 276, 449, 467--468, 472, 473, 475, & 476. 1934; Fedde & Schust. in Just, Bot. Jahresber. 57 (2): 400. 1938; Moldenke, Phytologia 7: 491. 1961; Moldenke, Résumé Suppl. 15: 4. 1967; Moldenke, Fifth Summ. 1: 99, 102, & 382 (1971) and 2: 847. 1971; A. L. Moldenke, Phytologia 23: 318. 1972.

Recent collectors describe this plant as a vine, hanging down from trees, 3--7 m. long, or a shrub, about 2 m. tall, with drooping branches, the fruit yellowish. They found it growing in woods and in wet areas on roadsides, at altitudes of 1200--1500 meters, flowering in February, and fruiting in February and April. Liogier refers to it as rare in deep forests on limestone and bauxite and comments about "the peduncles hanging down from trees". The flowers are described as having been "pale-brown" on Liogier 13993.

Additional citations: HISPANIOLA: Dominican Republic: Liogier 13993 (N, Z), 44158 (Ac, N); Liogier, Jiménez, & Marciano 44657 (Ld, N); Marciano s.n. [Jiménez 4505] (Jz).

AEGIPHILA NOVOFRIBURGENSIS Moldenke

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 568. 1941; Moldenke, Phytologia 13: 335. 1966; Moldenke, Fifth Summ. 1: 445 (1971) and 2: 847. 1971.

AEGIPHILA NOVOGRANATENSIS Moldenke

Synonymy: Aegiphila novo-granatensis [Moldenke] ex López-Palacios, Pittieria 5: 23. 1973.

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 568. 1941; Moldenke, Phytologia 7: 491--492. 1961; Moldenke, Fifth Summ. 1: 114 (1971) and 2: 847. 1971; Moldenke, Phytologia 27: 80. 1973; López-Palacios, Pittieria 5: 23 & 28--30. 1973.

Emended citations: COLOMBIA: Antioquia: F. C. Lehmann 4066 (F--689791--isotype, W--938514--type).

AEGIPHILA OBDUCTA Vell.

Additional & emended synonymy: Aegiphyla obducta Arrab. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Aegiphila obducta Arrab. apud Walp., Repert. Bot. Syst. 4: 124. 1845. Aegiphila obdurata Darwin, Diff. Forms Fls., ed. 1, 124 & 286. 1877. Aegiphila obducata Vell. apud Sampaio & Peckolt, Arquiv. Mus. Nac. Rio Jan. 37: 334, in syn. 1943. Aegyfilla obducta Vell., in herb.

Additional & emended bibliography: Schau. in Mart., Fl. Bras. 9: 289--290 & [309--310]. 1851; C. Darwin, Diff. Forms Fls., ed. 1, pr. 1 [London], 124, 286--287, & 346 (1877) and ed. 1, pr. 2 [New York], 124, 286--287, & 346. 1877; H. Müll. [transl. D'A. Thompson], Fertiliz. Fls. 469. 1883; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 46. 1893; T. Peckolt, Bericht. Deutsch. Pharm. Gesell. 14: 479--480. 1904; Glaz., Bull. Soc. Bot. France 58 Sér. 4, 11], Mém. 3: 547. 1911; G. Klein, Handb. Pflanzenanal. 2 (1): 530 & 532. 1932; Moldenke, Brittonia 1: 254, 255, 257, 259, 280, 454--456, & 472--477. 1934; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 46. 1946; Rambo, Sellowia 6: 59 & 84. 1954; Barroso, Rodriguésia 32: 71. 1957; Veloso & Klein, Sellowia 8: int. 124 & 127, int. 140 & 141, int. 174 & 175, 187, & 220 (1957) and 10: int. 28 & 29, int. 50 & 51, int. 94 & 95, & 105. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 46. 1960; Rizzini in Ferré, Simpos. Sobre Cerrado 107. 1962; Veloso & Klein, Sellowia 15: 104 & 109. 1963; Reitz & Klein, Sellowia 16: 44, 55, & 64. 1964; Angely, Fl. Anal. Paran., ed. 1, 579. 1965; Moldenke, Phytologia 13: 335. 1966; Moldenke, Résumé Suppl. 16: 14. 1968; Veloso & Klein, Sellowia 20: 124, 145, 152, & 178. 1968; Farnsworth, Blomster, Quimby, & Schermerh., Lynn Index 6: 263. 1969; Angely, Fl. Anal. & Fitogeogr. S. Paulo, ed. 1, 1: xxxvi. 1969; Reitz, Sellowia 22: 8. 1970; Angely, Fl. Anal. & Fitogeogr. S. Paulo, ed. 1, 4: 827 & i, map 1369; Moldenke, Fifth Summ. 1: 145, 354, 379--382, & 384 (1971) and 2: 793 & 847. 1971.

Peckolt (1904) gives a very detailed chemical analysis of this plant, along with a number of varied medicinal uses to which its bark and seeds are put. Barroso (1957) found it growing at 850 meters altitude, cites Barroso 602 & 1501, and asserts that it is limited in its natural distribution to the states of Rio de Janeiro and Minas Gerais. Reitz (1970) cites the species to p. 153 in volume 6 of *Sellowia* and to pages 248 & 255 in volume 13, but it is not mentioned on any of those pages!

It should also be noted here that, according to Dr. Erik Asplund, all Dusén collection labels of Paraná plants with "a" numbers were actually not collected by Dusén, but by Gösta Jönsson. However, in accord with my practice for the past 45 years, I am citing all such specimens just as the collector appears on the individual labels involved.

Charles Darwin (1877) gives an extremely interesting description of the heterostyly in this species, a description well worth repeating in full here: "Flowers of this bush were sent to me from St. Catharina in Brazil, by Fritz Müller, and were named for me at Kew. They appeared at first sight grandly heterostyled, as the stigma of the long-styled form projects far out of the corolla, whilst the anthers are seated halfway down within the tube; whereas in the short-styled form the anthers project from the corolla and the stigma is enclosed in the tube at nearly the same level with the anthers of the other form. The pistil of the long-styled is to that of the short-styled as 100 to 60 in length, and the stigmas, taken by themselves, as 100 to 55. Nevertheless, this plant cannot be heterostyled. The anthers in the

long-styled form are brown, tough, and fleshy, and less than half the length of those in the short-styled form, strictly as $\frac{1}{4}$ to 100; and what is much more important, they were in a rudimentary condition in the two flowers examined by me, and did not contain a single grain of pollen. In the short-styled form, the divided stigma, which as we have seen is much shortened, is thicker and more fleshy than the stigma of the long-styled, and is covered with small irregular projections, formed of rather large cells. It had the appearance of having suffered from hypertrophy, and is probably incapable of fertilisation. If this be so the plant is dioecious, and judging from the two species previously described [A. elata Sw. and A. mollis H.B.K.], it probably was once heterostyled, and has since been rendered dioecious by the pistil in the one form, and the stamens in the other having become functionless and reduced in size. It is, however, possible that the flowers may be in the same state as those of the common thyme and of several other Labiatae, in which females and hermaphrodites regularly coexist. Fritz Müller, who thought that the present plant was heterostyled, as I did at first, informs me that he found bushes in several places growing quite isolated, and that these were completely sterile; whilst two plants growing close together were covered with fruit. This fact agrees better with the belief that the species is dioecious than that it consists of hermaphrodites and females; for if any one of the isolated plants had been an hermaphrodite, it would probably have produced some fruit.....

"Most of the species of the.....genus....apparently are heterostyled."

Hatschbach describes A. obducta as a shrub, 2 m. tall, tending to be vining, and found it growing in capoeira formation in rainforests. The corollas on Hatschbach 24389 & 30078 are described as having been "white".

The Lindeman & Haas 533, distributed as A. obducta, is actually Citharexylum solanaceum Cham.

Additional & emended citations: BRAZIL: Guanabara: Duarte 4964 [Herb. Jard. Bot. Rio Jan. 110272] (W-2650246). Minas Geraes: Hatschbach 30078 (Ld); L. Riedel 452 (W-1484619). Paraná: Dusén 379a (E--908060, E--103660h), 8143 (E-1036230, W--1481609); Hatschbach 15136 (W--2564725), 24389 (N); Jönsson 379a (Ca-501694, D-683023, W--1481939). Rio de Janeiro: Glaziou 4160 (W-1194848), 6652 (W--1110388); Guillemin 975 (P). Santa Catarina: Rambo 31676 (B), 50296 (B); Ule 785 (W-944968). MOUNTED ILLUSTRATIONS: Moldenke, Phytologia 2: 439, fig. 3. 1948 (N, Z).

AEGIPHILA OBOVATA Andr.

Additional & emended synonymy: Aegiphyla obovata Andr. apud Steud., Nom. Bot., ed. 2, 1: 29. 1840. Aegiphila dubia Moldenke in Fedde, Repert. Spec. Nov. 33: 120. 1933. Aegiphila sylvatica

Greg ex Moldenke, *Phytologia* 1: 252--253, in syn. 1937 [not A. sylvatica Moldenke, 1933].

Additional & emended bibliography: Roem. & Schult. in L., *Syst. Veg.*, ed. 15, 3: 524--525 & [535]. 1818; Steud., *Nom. Bot. Phan.*, ed. 1, 1: 16. 1821; Paxt., *Pock. Bot. Dict.*, ed. 1, 8 (1810) and ed. 2, 8. 1849; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 1: 46. 1893; Moldenke in Fedde, *Repert. Spec. Nov.* 33: 120--121. 1933; Moldenke, *Brittonia* 1: 259, 269, 270, 380, 389, 391--395, 472, 473, 476, & 477. 1934; A. W. Hill, *Ind. Kew. Suppl.* 9: 6. 1938; Fedde & Schust. in *Just, Bot. Jahresber.* 60 (2): 567. 1914; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 1: 46 (1946) and pr. 3, 1: 46. 1960; Moldenke, *Phytologia* 13: 335. 1966; Moldenke, *Résumé Suppl.* 16: 14. 1968; Moldenke, *Fifth Summ.* 1: 111, 354, 379, 383, & 384 (1971) and 2: 847. 1971.

Emended citations: TRINIDAD & TOBAGO: W. E. Broadway 2973 (E--117698), 9064 (E--1035167). Trinidad: W. E. Broadway 6349 (E--932367), 6396 (E--972760), 6406 (E--972764); Finlay s.n. [*Trin. Bot. Gard. Herb.* 2386] (W--1323294), s.n. [*Trin. Bot. Gard. Herb.* 2389] (W--1323316).

AEGIPHILA OBTUSA Urb.

Additional & emended bibliography: Moldenke, *Brittonia* 1: 264, 358--360, 362, 472, & 473. 1934; Moldenke, *Phytologia* 7: 493. 1961; Moldenke, *Fifth Summ.* 1: 99 (1971) and 2: 847. 1971; C. D. Adams, *Flow. Pl. Jam.* 634, 635, & 800. 1972.

Adams (1972) refers to this species as "Rare and local...in woodland and woodland margins on limestone; 1500--2300 feet; fl. Jan, Aug--Sept, Adams 11720 & 12629, Harris 8996, Robertson UCWI 5411; endemic."

Emended citations: JAMAICA: Alexander Prior s.n. (F--350403); N. L. Britton 3224 (F--250402); Harris 8996 (F--212051--isotype).

AEGIPHILA ODONTOPHYLLA Donn. Sm.

Additional & emended synonymy: Aegiphila fusca Ørst. ex Moldenke, *Brittonia* 1: 351, in syn. 1934. Aegiphila aculeifera Moldenke in Fedde, *Repert. Spec. Nov.* 37: 209--210. 1934. Aegiphila furia Ørst. ex Moldenke, *Phytologia* 1: 254, in syn. 1937. Aegiphila odontophylla [Donn. Sm] ex López-Palacios, *Pittieria* 5: [8]. 1973.

Additional & emended bibliography: Donn. Sm., *Bot. Gaz.* 25: 157 (1898) and 57: 426. 1914; Moldenke in Fedde, *Repert. Spec. Nov.* 37: 209--210. 1934; Moldenke, *Phytologia* 1: 184--185, 222, & 254 (1937) and 1: 290. 1938; A. W. Hill, *Ind. Kew. Suppl.* 9: 5. 1938; P. C. Standl., *Field Mus. Publ. Bot.* 18: 994. 1938; Moldenke, *Alph. List Common Names* 29. 1939; Moldenke, *Geogr. Distrib. Avicenn.* 16 & 18. 1939; Moldenke, *Phytologia* 1: 378 & 395 (1940) and 2: 57--58. 1941; Moldenke, *Geogr. Distrib. Verbenac.*, [ed. 1], 22, 30, 84, & 85. 1942; Moldenke, *Phytologia* 2: 90. 1944; Moldenke, *Alph. List Cit.* 1: 58, 321, & 325. 1946; Hill & Salisb., *Ind. Kew. Suppl.* 10: 5. 1947; Moldenke, *Phytologia* 2: 388 (1947) and 2: 447.

1948; Moldenke, Alph. List Cit. 2: 328, 332, 339, 343, 344, 346, & 642 (1948), 3: 692, 730, 817, 819, 940, 945, 950, 965, & 978 (1949), and 4: 1053, 1058, & 1078. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 38, 39, 58, 174, & 175. 1949; Moldenke, Phytologia 4: 347, 385, 406, & 428. 1953; Moldenke, Résumé 46, 64, 229, 440, & 441. 1959; Moldenke, Phytologia 7: 456--457 & 493 (1961) and 8: 15. 1961; Moldenke, Biol. Abstr. 36: 4036 (1961) and 37: 1062. 1962; Moldenke, Phytologia 13: 319 & 335. 1966; Hocking, Excerpt. Bot. A.ll: 504. 1967; Moldenke, Fifth Summ. 1: 87, 89, 114, 378, & 379 (1971) and 2: 847. 1971; Moldenke, Phytologia 23: 417 (1972), 25: 289 (1973), and 27: 80 & 81. 1973; López-Palacios, Pittieria 5: [8], 9, 24, 28--30, & [38]--[42], fig. 9. 1973.

Additional illustrations: López-Palacios, Pittieria 5: [42], fig. 9. 1973.

Recent collectors describe this plant as a shrub, 5--6 m. tall, or a tree to 10 m. tall, the trunk to 33 cm. in diameter at the base and 10 cm. in diameter at breast height, stems tetragonal, bark gray to gray-brown, "glandularly-rough" [probably meant to be granularly rough], the branches long and arching, the buds white, the flowers cruciform, 1 cm. in diameter, the corolla-lobes reflexed, and the immature fruit green, ripening pale-yellow and semi-pellucid. They have found it growing in clay loam among secondary growth, in roadside thickets, in cutover cloud-forests, and in semi-shade at the edges of cloud-forests, at altitudes of 2000--2500 meters, flowering in February, from April to July, and in September, fruiting in January, May, and June. Stork comments that it is "quite a common tree in thickets at edge of forests".

The corollas are described as having been "white" on A. Gentry 6003, Hatheway 1393, A. Jiménez M. 2192 & 3944, and Kirkbride & Duke 714, "creamy-white" on Stork 4210, and "white, turning yellow in age" on Gillis 10015.

According to some recent workers an easy way to distinguish A. odontophylla from A. anomala Pittier is that in the former the leaves are decussate-opposite, while in the latter they are verticillate. López-Palacios says in a personal communication to me that Ruiz-Terán 3201 in the University of Los Andes herbarium and Ijjasz 435 in the Maracay herbarium represent this species from Mérida, Venezuela. In his 1973 work he cites also Bernardi 6157 (previously regarded by me, apparently erroneously, as A. grandis Moldenke) and Little 15350 from Mérida. He comments that "El ejemplar 6157 de Bernardi parece haber sido determinado por el Dr. Moldenke como Aegiphila grandis, pues con letra del colector hay una nota que dice: 'Det. H. N. Moldenke VI, 57'. Si el Dr. Moldenke hizo en realidad tal determinación, parece que no leyó con detenimiento el rótulo en donde dice claramente: 'flor tetrámera', lo que excluye su pertenencia a esta taxon. La especie, a pesar de parecer inconfundible, muestra cierta variabilidad, especialmente en las hojas, que no todas son dentadas y cuyo tamaño es muy

diverso; en los cálices, que varían desde truncos hasta bilabiados, y por tanto hay que enclavarla en dos distintas subsecciones: Lobatae y Edentatae, y en la corola con 3, 4 y 5 pétalos que la lleva también a distintas secciones: Amerina y Aegiphila, y aun en la forma misma de la inflorescencia, que unas veces es axilar y otras supraxilar."

It is worth noting here that Standley (1938) keeps A. odontophylla and A. aculeifera as distinct taxa in Costa Rica, citing Brenes 5709 for A. aculeifera and Pittier 288 (the type) for A. odontophylla, calling the latter "endemic" to Costa Rica, in "wet forests of the central mountains, at 2,000—2,400 meters". More recent ample collections convince me that the two taxa are identical.

Additional & emended citations: COSTA RICA: Alajuela: Brenes 5709 [301] (F—854416, F—854437, N), 5709a (N); Hatheway 1393 (W—2512700); A. Jiménez M. 3944 (N); Skutch 3255 (N, W—1643369); A. Smith 989 (N, N, N), 1037 (N, N, N), 4210 (F—905228, F—906224), A.252 (F—941319, N), H.1104 (F—942205, N, N), P.2035 (Ca—12690); A. F. Smith 110 [Stork 4210] (Mi, N). Cartago: Gillis 10015 (Z); Jiménez M. 2192 (N, Ws, Ws); Stork 2230 (F—598755); Williams, Molina R., Williams, & Gibson 28215 (N). Guanacaste: Ørsted 11174 (F—687350, W—1269897). Heredia: H. Pittier 288 (W—1323303—type). San José: H. Pittier 7584 (E—photo, N—photo, N—photo, S—photo, Z—photo, Z—photo). PANAMA: Bocas del Toro: Kirkbride & Duke 714 (E—1983555), 753 (E—1983549). Chiriquí: A. Gentry 6003 (Id). COLOMBIA: Cauca: F. C. Lehmann 8524 (F—662523, W—1571426); Sneidern 1661 (S, W—2103663). Huila: E. L. Little Jr. 7711 (N, W—2140351). VENEZUELA: Mérida: Bernardi 6157 (N).

AEGIPHILA OVATA Moldenke

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Moldenke, Brittonia 1: 189—190. 1932; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 569. 1941; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 704, 710, & 714—715. 1960; Moldenke, Phytologia 7: 493. 1961; Moldenke, Fifth Summ. 1: 139 & 181 (1971) and 2: 847. 1971; Moldenke, Phytologia 25: 320. 1973.

Macbride (1960) points out that in my key to the species of Aegiphila known to me in 1934 I describe the leaves of A. ovata as not ciliate, while in actuality they are ciliate. He cites only Killip & Smith 26520 from Loreto, Peru, the type collection, but feels that A. hirsuta var. colombiana Moldenke may be conspecific with it, saying "The var. colombiana.....from Putumayo near Peru is of course more widely distributed, but the tree may be referable to A. ovata Mold., the apparent differences certainly [lie] within the range of expected variation". He also notes that A. ovata "Simulates A. cordata Poeppig with cordate or subcordate

shortly acuminate leaves and is apparently distinct".

Emended citations: PERU: Junin: Killip & Smith 26520 (W-631920--type).

AEGIPHILA PANAMENSIS Moldenke

Synonymy: Aegiphila paniculata Moldenke, Trop. Woods 25: 16--17. 1931. Aegiphila nigrescens Ørst. ex Moldenke, Prelim. Alph. List Invalid Names 3, in syn. 1940.

Additional & emended bibliography: Moldenke, Trop. Woods 25: 14--17. 1931; Moldenke, Brittonia 1: 253, 257, 269, 273, 274, 375--376, 386--388, 399--402, & 472--476. 1934; Moldenke, Phytologia 1: 254--255. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 6. 1938; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 416. 1939; Moldenke, Geogr. Distrib. Avicenn. 16--18. 1939; Hill & Salisb., Ind. Kew. Suppl. 10: 5. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 15, 19, 22, 23, 30, & 85. 1942; Moldenke, Alph. List Cit. 1: 7, 57, 58, 123, 167, 170, 193, 268, 273, 319, 320, & 326 (1946), 2: 339, 340, 347, 349, 351, 530, 609, & 610 (1948), 3: 714, 715, 757, 780, 781, 816, 818, 918, 940, 959, 973, & 978 (1949), and 4: 1005, 1034, 1036, 1038, 1046, 1048--1053, 1055, 1061, 1067, 1068, 1141, 1186, & 1304. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 28, 34, 38--40, 59, & 175. 1949; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14353. 1958; Moldenke, Résumé 33, 41, 45--47, 65, 230, & 441. 1959; Moldenke, Phytologia 13: 336. 1966; Moldenke, Résumé Suppl. 16: 3, 4, & 14. 1968; Gibson, Fieldiana Bot. 24 (9): 172. 1970; Moldenke, Phytologia 23: 416 (1972), 25: 228, 309, 315, & 414 (1973), and 27: 79, 84, & 87. 1973.

Recent collectors describe this plant as an herb, an arching or scandent shrub, 1.5--5 m. tall, a small tree, 1.8--15 m. tall, or a woody vine, the trunk to 13 cm. in diameter at breast height, the stems about 1 inch in diameter, the buds yellow-green, with a faint unpleasant odor, the calyx green, and the fruit from green [when unripe], yellowish-, dull yellow-, or yellow-green to finally orange. They have found it growing along roadsides, at the edge of secondary growth, in forests, deep forests, disturbed forests, clearings, cutover pine forests and thickets, marshy rainforests, often by native plantations, in wooded swamps, in very advanced secondary rainforests, and in moist or riverine thickets, on brushy slopes and forested escarpment slopes, at the open edges of fields, in small ravines, and at the edges of steep pastures in forested coves with streams, often in muddy habitats, and even in the open sunlight, at altitudes of near sealevel to 850 meters. The Molinas refer to it as "a common shrub" in Copán, Honduras. It has been collected in anthesis in April, July to October, and in December, and in fruit from October to January.

The corollas are described as having been "white" on P. H. Allen 906 & 2016, Croat 6580 & 6749, J. A. Duke 8889 & 8983, and Molina R. 26217, "whitish" on Blum & Tyson 1955 and Tyson & Chu 1713, "cream" on Croat 12808 and Woodson, Allen, & Seibert 1756, "cream to white" on Correa & Dressler 351, "pale-yellow" on P. H.

Allen 856 and Lewis, Porter, Durkee, & Baker 5523, "yellowish" on Skutch 2680, "yellow" on Wedel 1221, "lemon-yellow" on Woodson, Allen, & Seibert 1247, and "greenish-yellow" on P. C. Standley 30246, while on P. White 255 they are described as "corolla-tube very light-yellow, limb yellow". Croat 7089 is accompanied by a wood sample. Skutch 2680 is the Missouri Botanical Garden herbarium has inflorescences which look as if they might have been pendent as in *A. pendula* Moldenke. The Ebinger 243, cited below, was previously erroneously cited by me as *A. falcata* Donn. Sm.

Gibson (1970) reduces this species to synonymy under *A. martinicensis* Jacq., but I feel that the characters of the fruiting-calyx and fruit certainly are in themselves sufficient to indicate a separate taxon, although possibly one of infraspecific rank might be acceptable. *Aegiphila panamensis* and *A. paniculata* are kept separate by some recent workers, as they were originally by myself. The type of the former is in flower, while that of the latter is in fruit, but it seems most likely to me now that they will prove to be conspecific.

Material of *A. panamensis* has been misidentified and widely distributed in herbaria as *A. falcata* Donn. Sm., *A. glandulifera* Moldenke, and *A. martinicensis* Jacq., and even as *Cestrum* sp. On the other hand, the J. A. Duke 3805 and Lewis, Dwyer, Elias, & Robertson 857, distributed as *A. panamensis* or *A. paniculata*, are *A. falcata* Donn. Sm., Molina R. 22996 is *A. laxicipulis* Moldenke, Wedel 336 is *A. magnifica* Moldenke, Piper 5616 is *A. magnifica* var. *pubescens* Moldenke, J. A. Duke 13706, Tyson & Blum 2552, and Woodson & Schery 758 are *A. mollis* H.B.K., and Feddema 1887 is a species of *Schlegelia*. The Wedel 2517, previously regarded by me as *A. panamensis*, seems to be *A. glandulifera* instead: its leaf-blades are abundantly impressed-punctate beneath and the rim of the fruiting-calyx is plainly erose-lobed.

Additional & emended citations: GUATEMALA: Chiquimula: J. A. Steyermark 30757 (F--1037191). HONDURAS: Copán: Molina R. 26217 (N); Molina R. & Molina 24740 (N). NICARAGUA: Segovia: Englesing 100 (F--572555, N--photo, W--1522806, Y--12416, Z--photo). Zelaya: Shank & Molina R. 4900 (W--2085127). COSTA RICA: Alajuela: Brenes 3574 [110] (F--851573), 4320 [105] (F--852395), 4345b [105a] (F--852633), 4395 [180] (F--852362), 14313 (F--856534), 16823 [2] (F--858958, N). Cartago: Ørsted 11175 (W--1269898). Guanacaste: Williams, Molina R., & Williams 26442 (N, W--2567032). Puntarenas: Burger & Liesner 7270 (N); Burger & Matta U. 4794 (N); Lems 64091403 (N, N); Raven 21698 (N). San José: Skutch 2680 (E--1110628). PANAMA: Bocas del Toro: Cooper & Slater 40 (F--572715, W--1315462, Y--10140), 117 (W--1317525, Y--10297); Dunlap 20 (F--635780), 407 (F--580018, W--1205277), 438 (F--

580026, W--1405651); Stork 20 (W--1166812), 48 1/2 (F--579997, W--1166837); Wedel 1221 (E--1644286). Canal Zone: P. H. Allen 2016 (E--1190940); Blum & Dwyer 2103 (E--1817692); Blum & Tyson 1993 (E--1841436); Correa & Dressler 351 (N); Dodge & Allen 17471 (E--1121185, Mi); Dwyer 2873 (E--1799770), 7172 (E--1811576, W--2545753); Foster & Kennedy 2027 (Mi); Greerman & Greerman 5227 (E--1887268, E--1887269); Killip 12171 (D--618113, W--1167303); Lewis, Dwyer, & Elias 20 (E--1881641); P. C. Standley 25808 (W--1216647), 25956 (W--1216752), 26465 (W--1217019), 29232 (F--photo, N--photo, W--1218591, Z--photo), 30246 (N--photo, W--1219156, Z--photo); Tyson & Chu 1713 (E--1841721); P. White 255 (E--1193766). Coclé: Lewis, Porter, Durkee, & Baker 5523 (Ld); Woodson, Allen, & Seibert 1247 (E--1170759), 1249 (E--1171168), 1756 (E--1170879). Colón: H. Pittier 4149 (W--679248). Darién: P. H. Allen 856 (E--1192018), 906 (E--1191680); J. A. Duke 4095 (Ca, E--1786146), 4109 (E--1786138, Z). Panamá: P. H. Allen 1123 (E--1189707, F--1005205); Bartlett & Lasser 16901 (Mi, Mi); Blum & Tyson 1955 (E--1832091); J. A. Duke 3805 (Ca), 5514 (E--1819552), 5866 (E--1814170); Heriberto 163 (W--1084380); Paul 153 (W--1494783); H. Pittier 4501 (W--679662), 6815 (W--716874--isotype); P. C. Standley 26684 (W--1217141), 28155 (W--1217983), 28871 (N--photo, W--1218360, Z--photo), 30496 (W--1219322). San Blas: J. A. Duke 8889 (Oh), 8983 (W--2629833, Z); Lewis, Dwyer, Elias, & Solís 157 (E--1881642), 201 (E--1881640, N, W--2589536). Barro Colorado Island: Croat 6749 (N), 6780 (N), 7089 (N), 12808 (N); Ebinger 243 (E--1938934). COLOMBIA: Chocó: J. A. Duke 9091 (W--2629847). Santander: Killip & Smith 14729 (A, A--photo, B--photo, D--photo, F--photo, G, G--photo, K--photo, N, N--photo, N--photo, P--photo, S--photo, W--photo, Z--photo, Z--photo).

AEGIPHILA PARAGUARIENSIS Briq.

Additional synonymy: Aegiphila paraguariensis Brig. ex Eiten in Ferré, Simpos. Sobre Cerrado 190, sphalm. 1962.

Additional & emended bibliography: Briq. in Chod. & Hassler, Bull. Herb. Boiss., ser. 2, 4: 1166--1167. 1904; Briq. in Chod. & Hassler, Plant. Hassler. 2: 502--503. 1904; Eiten in Ferré, Simpos. Sobre Cerrado 190. 1962; Angely, Fl. Anal. Paran., ed. 1, 579. 1965; Moldenke, Phytologia 13: 336. 1966; Moldenke, Résumé Suppl. 16: 5 & 14. 1968; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo, ed. 1, 4: 1 & 827, map 1370. 1971; Moldenke, Fifth Summ. 1: 145, 184, & 382 (1971) and 2: 847. 1971; Moldenke, Phytologia 27: 83. 1973.

Recent collectors describe this plant as a shrub, treelet, or small tree, 1--6 m. tall, sometimes gnarled, the trunk 3--15 cm. in diameter, the leaves yellow-green, the calyx green or yellow-green, stamens yellow, anthers brown, and young fruit green or

dark-green, shiny, maturing yellow. They have encountered it on outcrops, in "riacho" and swampy creek margins, in "campo cerrado" and on cerrado slopes, in reddish sand on campo cerrado near air-strips, in cutover woodland and cutover forest slopes, and among rocks in areas of sandstone hills with steep rock faces and grassy or shrubby vegetation, at altitudes of 220—1750 meters, flowering in February, March, October, and November, fruiting from December to April. Irwin and his associates found it in "capoeira thicket in area of valley flats, capoeira with grazed grasses". Eiten (1962) describes the species as a "Low tree [in] tall shrub savanna of cerrado" and cites "E & MC 1522".

The corollas are said to have been "white" on Gottsberger 729, Irwin, Souza, & Reis dos Santos 10210, Krapovickas, Cristóbal, & Maruffak 23398, and Lindeman & Haas 3190, "cream" on Irwin, Souza, & Reis dos Santos 10677, and "pale greenish-yellow" on Cuatrecasas 26592, while on N. T. Silva 57727 it is noted that they were yellow.

Material of A. paraguariensis has been misidentified and distributed in some herbaria as A. sellowiana Cham. On the other hand, the Harley, Lima, Onashi, & Souza 10585 and the Ramos & Sousa 147, distributed as A. paraguariensis, are A. lhotzkiana Cham.

Additional & emended citations: BRAZIL: Amazonas: Prance, Pena, & Ramos 3424 (Ld, N, S). Distrito Federal: Irwin, Souza, & Reis dos Santos 10144 (Ac, N), 10210 (Ac), 10677 (Ld, N). Goiás: Irwin, Souza, & Reis dos Santos 10888 (Ac, N); N. T. Silva 57727 (S). Mato Grosso: Philcox, Ferreira, & Bertoldo 3438 (N). Minas Gerais: Anderson, Stieber, & Kirkbride 35553 (Ld, N); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28110 (Ac, N); Irwin, Harley, & Onishi 29468 (Ld, N), 30340 (N); Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 26010 (Ld, N); Irwin, Reis dos Santos, Souza, & Fonsêca 23288 (Ac, N). Paraná: Dusén 10472 (Ca-501693, E-1036228, W-1481892), 15963 (D-683022, E-908057, W-1481893); Lindeman & Haas 981 (N). São Paulo: Carvalho s.n. [Herb. Inst. Biol. S. Paulo 748] (W-1594602); Cuatrecasas 26592 (W-2586696); I. S. Gottsberger 729 [1] (Ld); Krapovickas, Cristóbal, & Maruffak 23398 (Ld); Lindeman & Haas 3190 (N, W-2631428); Mimura 160 (N). PARAGUAY: Hassler 4498 (F-686671--cotype), 5056 (F-686671--cotype).

AEGIPHILA PARVIFLORA Moldenke

Additional & emended bibliography: Moldenke, *Brittonia* 1: 254—256, 266, 328—329, 336, 341, 417, 420, 473, & 476. 1934; A. W. Hill, *Ind. Kew. Suppl.* 9: 6. 1938; Fedde & Schust. in *Just, Bot. Jahresber.* 60 (2): 568. 1941; J. F. Macbr., *Field Mus. Publ. Bot.* 13 (5): 717. 1960; Moldenke, *Phytologia* 13: 336. 1966; Moldenke, *Fifth Summ.* 1: 121 & 145 (1971) and 2: 847. 1971. [to be continued]